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NEWS

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FOURTEEN GRAND CHALLENGES IN GLOBAL HEALTH ANNOUNCED IN $200 MILLION INITIATIVE

Grant Proposals Sought to Overcome Scientific Roadblocks to Addressing the Diseases of the Developing World

WASHINGTON, DC, Oct. 17--The Foundation for the National Institutes of Health (FNIH) and the Bill & Melinda Gates Foundation today announced the first 14 scientific challenges that will be the focus of the Grand Challenges in Global Health initiative. As of today, the FNIH seeks grant proposals for research on these critical scientific and technological problems that, if solved, could lead to important advances against diseases of the developing world.

The Bill & Melinda Gates Foundation announced a $200 million grant to the FNIH in January to establish and administer the Grand Challenges in Global Health initiative in partnership with the National Institutes of Health (NIH). As a partner in this new initiative, the NIH will identify activities that are appropriate for government funding. Possibilities include the parallel release of announcements to fund joint or associated projects, funding shared resources and training, and announcing funding opportunities for follow-up grants that complement the Grand Challenges in Global Health initiative.

The intent of the initiative is to engage creative minds from across the world and the breadth of scientific and technology communities, including those who have not traditionally engaged in global health research, to partner in developing solutions to the stated challenges.

"It is high time that the world's scientific community, which has contributed so much to the medical progress achieved in the last century, turns its creative attention to solving the enormous health problems of the developing world," said Dr. Richard Klausner, executive director of the global health program at the Bill & Melinda Gates Foundation.

The initiative is guided by an international scientific board chaired by Nobel laureate Harold Varmus, M.D., president of Memorial Sloan-Kettering Cancer Center and former Director of the NIH. The scientific board developed the 14 challenges from more than 1,000 ideas submitted by scientists in 75 countries. Additional challenges for the initiative may be announced in the future.

"These are all very significant and difficult scientific problems. If we could solve any one of these grand challenges the impact on health in the developing world could be dramatic, and we hope to solve several in the course of this new initiative," Dr. Varmus said.

"These grand challenges capture the tremendous potential for bright, creative scientists to make a difference in the lives of billions of people around the globe," Health and Human Services Secretary Tommy G. Thompson said. "By focusing resources and research on developing practical solutions to these challenges, we are creating a real opportunity to dramatically improve the health and well-being of people throughout the developing world."

The challenges announced today, which are associated with seven broad goals, are:

Improve childhood vaccines:

1. Create effective single-dose vaccines that can be used soon after birth.
2. Prepare vaccines that do not require refrigeration.
3. Develop needle-free delivery systems for vaccines.

Create new vaccines:

4. Devise reliable tests in model systems to evaluate live attenuated vaccines.
5. Solve how to design antigens for effective, protective immunity.

6. Learn which immunological responses provide protective immunity.

Control insects that transmit agents of disease:

7. Develop a genetic strategy to deplete or incapacitate a disease-transmitting insect population.
8. Develop a chemical strategy to deplete or incapacitate a disease-transmitting insect population.

Improve nutrition to promote health:

9. Create a full range of optimal, bioavailable nutrients in a single staple plant species.

Improve drug treatment of infectious diseases:

10. Discover drugs and delivery systems that minimize the likelihood of drug resistant micro-organisms.

Cure latent and chronic infections:

11. Create therapies that can cure latent infections.
12. Create immunological methods that can cure chronic infections.

Measure disease and health status accurately and economically in developing countries:

13. Develop technologies that permit quantitative assessment of population health status.
14. Develop technologies that allow assessment of individuals for multiple conditions or pathogens at point-of-care.

The Grand Challenges initiative is based on the recognition that poor health is one of the greatest impediments to international development. Although the scientific community has the resources and brainpower to develop new, innovative, and more affordable solutions to health problems in developing countries, only a small fraction of existing biomedical research efforts are directed toward health problems that disproportionately affect the two billion poorest people on earth. To date, there has been no systematic effort to identify the most critical scientific challenges in global health and direct funds to solve them. By directing substantial and carefully targeted resources toward key health-related research questions pertinent to developing countries, the Grand Challenges initiative is intended to attract talented investigators to address these issues and significantly accelerate the development of affordable, practical solutions.

An article in the October 17 issue of *Science* by Varmus et al. describes the deliberations of the international scientific board, a 20-member panel of scientists and public health experts from 13 countries, including several from the developing world, which formulated the first 14 Grand Challenges (visit: http://www.sciencemag.org/cgi/content/full/302/5644/398.). According to the article, questions used to evaluate each proposed Grand Challenge included: Does the proposal describe a difficult and discrete roadblock to progress? What are the possible impacts on various diseases if the challenge is successfully met? Will envisioned advances be suitable for implementation in poorer parts of the world? The authors note that none of the goals or Grand Challenges addresses a single disease, in keeping with the initiative's goal to "identify underlying scientific and technical problems that impede progress against multiple disorders."

The FNIH now seeks grant proposals from the international scientific community for research on the 14 Grand Challenges. Grants will be awarded for up to a total of $20 million for a maximum five-year period. Applications are invited from every part of the world, from single or multiple institutions, both non-profit and for profit. To apply for a research grant, investigators must first submit a letter of intent; those that show the most promising and innovative research approaches will be invited to submit a formal grant proposal.

For more detailed information on the Grand Challenges initiative, including the full texts of the Grand Challenges and instructions on the grant submission process, visit www.grandchallengesgh.org.

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The Foundation for the National Institutes of Health was established by the United States Congress to support the mission of the National Institutes of Health – improving health through scientific discovery. The Foundation identifies and develops opportunities for innovative public-private partnerships involving industry, academia, and the philanthropic community. A non-profit, 501(c)(3) corporation, the Foundation raises private-sector funds for a broad portfolio of unique programs that complement and enhance NIH priorities and activities. The Foundation's Web site address is http://www.fnih.org.

The Bill & Melinda Gates Foundation is building upon the unprecedented opportunities of the 21st century to improve equity in global health and learning. Led by Bill Gates' father, William H. Gates, Sr., and Patty Stonesifer, the Seattle-baseed foundation has an endowment of approximately $25 billion. The Foundation's Web site address is http://www.gatesfoundation.org/.

The National Institutes of Health (NIH), Department of Health and Human Services, is the primary Federal agency for conducting and supporting medical research, helping to lead the way toward important medical discoveries to improve people's health. NIH investigates the causes, treatments, and cures for both common and rare diseases. Composed of 27 Institutes and Centers, each with its own broadly defined mission, NIH provides leadership and financial support to more than 210,000 researchers in every state and throughout the world. The NIH Web site may be visited at http://www.nih.gov/.

(Background material attached.)

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